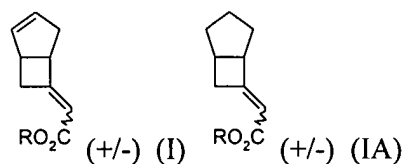


Claims

1. A racemic intermediate of formula (I) or (IA)

5



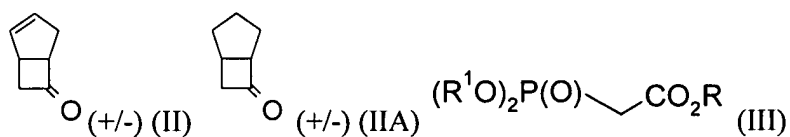
where R represents H or a suitable carboxylic acid protecting group.

2. A compound according to Claim 1 where R represents H, C₁₋₆alkyl or benzyl.

10

3. A process for the preparation of a compound of formula (I) or (IA) comprising reaction of compounds of formula (II) or (IIA), respectively, with a compound of formula (III)

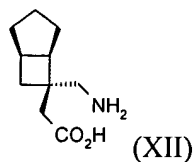
15



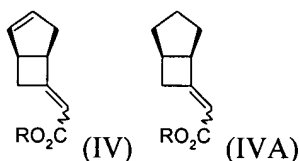
where R¹ represents a suitable phosphonyl ether group and R represents a suitable carboxylic acid protecting group, in the presence of a suitable base, followed by optional deprotection of the R group.

20

4. Use of a compound of formula (I) or (IA) in the preparation of a compound of formula (XII)



5. A process for the preparation of a compound of formula (IV) or (IVA)



comprising the reaction:

- (i) where R is H, enzymatic hydrolysis of a compound of formula (I) or (IA), as defined in Claim 1, where R is a carboxylic acid protecting group; or
- (ii) where R is a carboxylic acid protecting group, enzymatic esterification of a compound of formula (I) or (IA) where R is H; or
- (iii) chromatographic resolution of the isomers of a compound of formula (I) or (IA); or
- (iv) where R is a carboxylic acid protecting group, by enzymatic hydrolysis of a compound of formula (I) or (IA) where R is a carboxylic acid protecting group, followed by re-esterification; or
- (v) where R is a carboxylic acid protecting group, by removal of the undesired stereoisomer of a compound of formula (I) or (IA) where R is a carboxylic acid protecting group by enzymatic hydrolysis.

6. A process according to Claim 5 (i) or (iv) where the enzymatic hydrolysis is effected by Novozyme 435.
- 5 7. A process for the preparation of a compound of formula (XII) as defined in Claim 4, which comprises, as an intermediate step, a process according to Claim 5.